Structures Design

New Steel Truss Pedestrian Bridge Policy

June 12-14, 2012

David Amato P.E.
Area Structures
Design Engineer

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Structures Design Bulletin C11-07/ Roadway Design Bulletin 11-07

- Joint Bulletin Released on June 30, 2011
- Outlined new design policy for Design of Prefabricated Steel Truss Pedestrian Bridges
- Policy implemented through changes to:
  - PPM, Vol. 1 Section 8.7
  - SDG Chapter 10
- Effective date January 1, 2012
- Only for Design-Bid-Build Projects

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Policy Prior to January 1, 2012

- All pedestrian bridges required a generic design and were fully detailed in the bid documents.
- Contractors allowed to substitute proprietary prefabricated bridge for the generic bridge after bid.

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The Problem

- In most cases the generic bridge was never built.
- RFM process was used to substitute a proprietary steel truss bridge for the generic design.
- Time and resources allocated for the generic design were largely wasted.

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Proposed Policy Overview

EOR/Department decide: generic design or proprietary steel truss.

If proprietary steel truss specified:

- Superstructure details not included in the pre-bid plan set.
- Superstructure detailed in shop drawings after bid by the Contractor's EOR.
- Foundation and substructure detailed in plans prior to bid by the project EOR.

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Proposed Policy

If generic design specified:

- Superstructure, Substructure, and Foundation fully detailed in plans prior to bid.

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Benefits to the Process

- Eliminates the design fee for a structure that most likely will never be constructed.
- Promotes fair competition among participating prefabricated bridge producers.

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Qualifiers

Prefabricated steel truss bridges only used under the following conditions:

- tangent alignment (no curved structures)
- constant bridge width
- span length ≤ 200’
- skew ≤ 20˚

If any of these conditions are not met generic bridge design will be required.

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Design Responsibilities

EOR Responsible for:

- Foundation
- End Bents
- Piers
- Approach Structures (walls, ramps, steps, non-steel truss approach spans, etc)

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Design Responsibilities

Contractor's EOR (fabricator) Responsible for Superstructure Design including:

- Trusses
- Deck
- Floor Beams
- Bridge Joints
- Bearings

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Project Development (pre-bid)

1. Identify all allowable options for three key design parameters.

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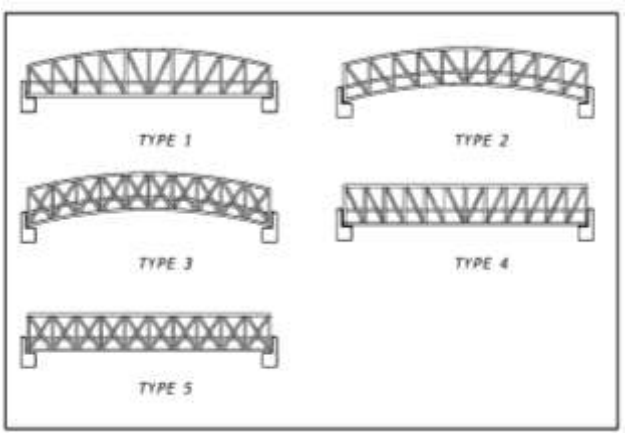
Project Development (pre-bid)

PPM Figure 8.7.2 Standard Truss Configurations



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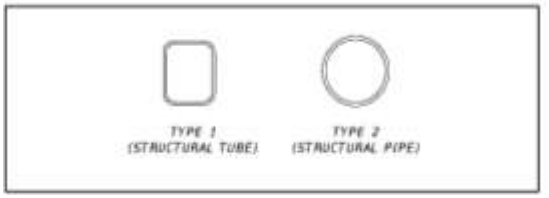
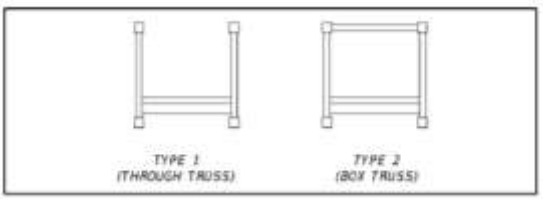
Project Development (pre-bid)

PPM Figure 8.7.3 Standard Truss Member Shapes



PPM Figure 8.7.4 Standard Bridge Cross-sections



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Project Development (pre-bid)

1. (Cont'd)
   - Non-standard truss configurations are allowed if warranted by project aesthetics.
   - Two or more producers must be capable of providing the non-standard truss.
   - Concurrence with District is required.

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Project Development (pre-bid)

2. Develop Plan and Elevation Sheet and Bridge Typical Section to be submitted with BDR.

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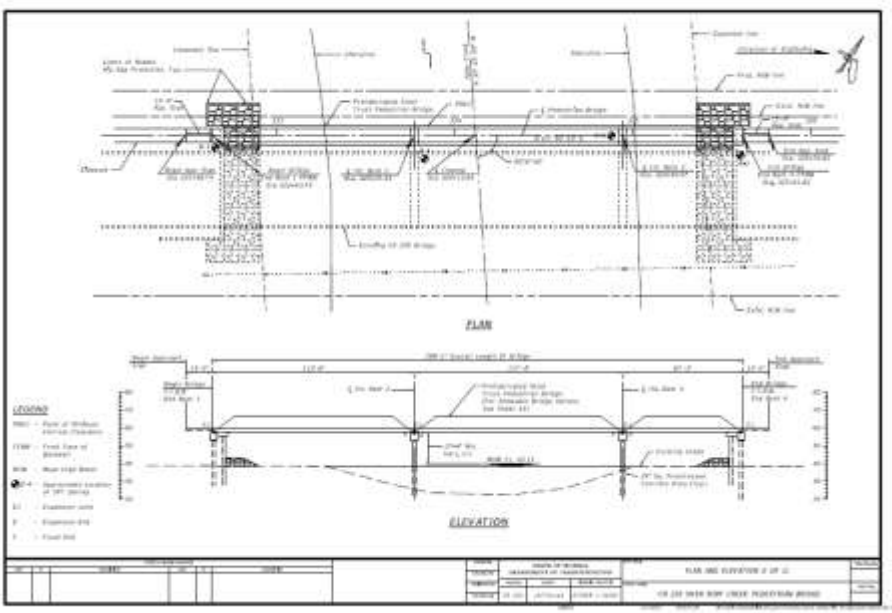
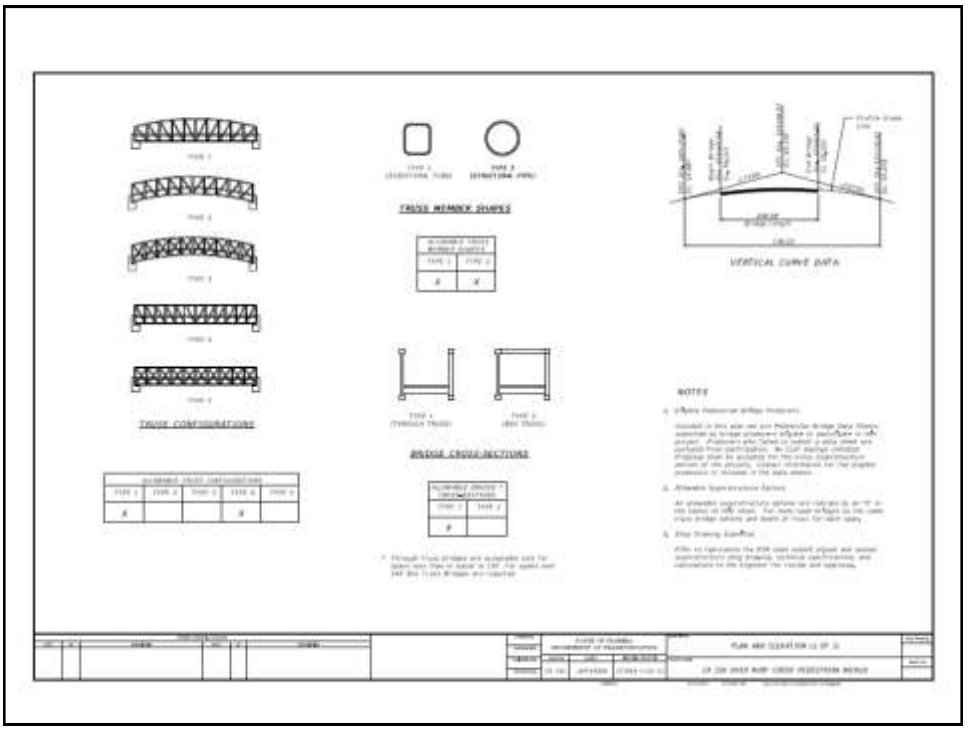
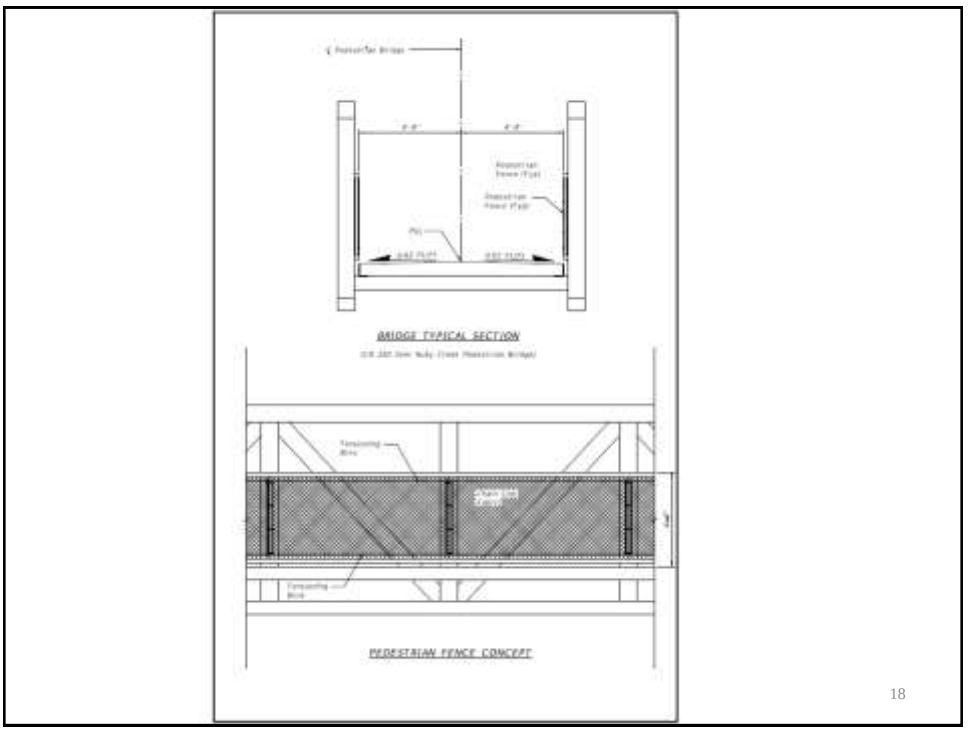



TRUSS CONFIGURATIONS
TRUSS MEMBER SHAPES
VERTICAL CURVE DATA
BRIDGE CROSS-SECTIONS
NOTES


BRIDGE TYPICAL SECTION
PEDESTRIAN FENCE CONCEPT

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Project Development (pre-bid)

3. After BDR approval Send Invitation to Participate (ITP) package to all qualified producers.
   - ITP used to gather information needed for foundation /substructure design
   - Qualified producers listed on the State Materials Office website: ftp://ftp.dot.state.fl.us/fdot/smo/website/sources/metalsource.pdf

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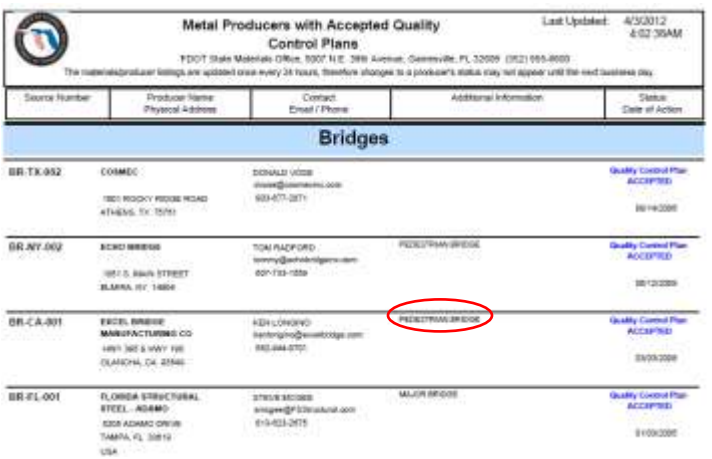
Project Development (pre-bid)



Metal Producers with Accepted Quality Control Plans

Last Updated: 4/3/2012 4:02:39AM

FDOT State Materials Office, 5007 N.E. 39th Avenue, Gainesville, FL 32609 (352) 955-6600

The materials/producer listings are updated once every 24 hours, therefore changes to a producer's status may not appear until the next business day.

Source Number	Producer Name Physical Address	Contact Email / Phone	Additional Information	Status Date of Action
Bridges				
BR-TX-002	COMMEC 1501 ROCKY RIDGE ROAD ATHENS, TX 75751	DONALD VOSS dvoss@commecinc.com 903-677-2871		Quality Control Plan ACCEPTED 09/14/2009
BR-NY-002	ECHO BRIDGE 1951 S. MAIN STREET OLEAN, NY 14760	TOM RADFORD tommy@echobridgeinc.com 607-733-1554	PEDESTRIAN BRIDGE	Quality Control Plan ACCEPTED 08/12/2009
BR-CA-001	EXCEL BRIDGE MANUFACTURING CO HWY 395 & HWY 190 OLANCHA, CA 93549	KEN LONGINO kenlongino@excelbridge.com 760-764-3707	PEDESTRIAN BRIDGE	Quality Control Plan ACCEPTED 03/09/2009
BR-FL-001	FLORIDA STRUCTURAL STEEL - ADAMO 6200 ADAMO DRIVE TAMPA, FL 33619 USA	STEVE MCCABE smccabe@fcsteel.com 813-623-2875	MAJOR BRIDGE	Quality Control Plan ACCEPTED 01/09/2006

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Project Development (pre-bid)

4. Steel Truss Bridge Producers submit completed Pedestrian Bridge Data Sheet to EOR.
   - Data Sheets electronically signed and sealed.
   - Data Sheets inserted into pre-bid plan set.
   - Only producers with completed Data Sheets in plans are eligible to participate.

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Project Development (pre-bid)

5. EOR completes foundation and substructure design and detailing to accommodate superstructures of all eligible Steel Truss Bridge Producers.
6. Contractors select one of the eligible Steel Truss Bridge Producers listed in the plans and includes the cost in bid proposal.

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Project Development (after bid)

Prior to fabrication the Contractor's EOR (Steel Truss Bridge Producer)shall submit the following to the project EOR for review and approval:

- signed and sealed superstructure shop drawings
- technical specifications
- design calculations

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Contents of ITP

- Cover Letter
  - Introduction/Project Description
  - Project Requirements
  - Participation Requirements
  - Submittal Requirements
- Location Map
- Plan and Elevation
- Typical Section
- Pedestrian Bridge Data Sheet

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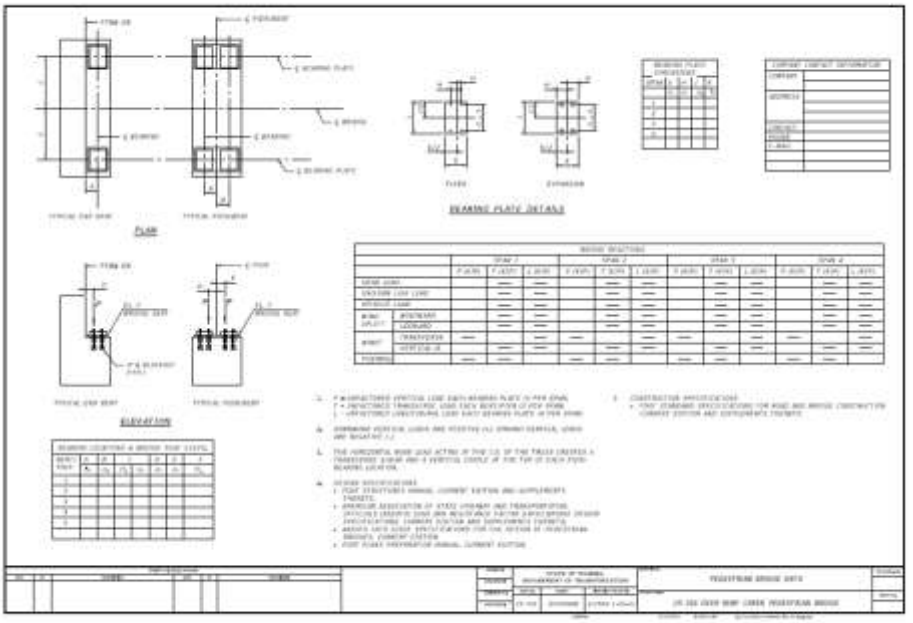

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Questions?

2012 Design Training Expo

June 12-14, 2012

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